CHAPTER 60 RELEASE DETECTION

Secs.

6000 GENERAL PROVISIONS

6000.1 Each owner and operator of a new or existing UST system shall provide a method, or combination of methods, of release detection that meets the requirements of this section.

6000.2 The owner and operator of each UST system, regardless of the date of installation, shall immediately comply with the release detection requirements for all pressurized piping set forth in §§6004.2 and 6004.3.

6000.3 The owner and operator of each UST system shall comply with the requirements for release detection systems set forth in this chapter for existing UST systems not later than the deadlines set forth in the following schedule:

(a) UST systems installed before January 1, 1980, or UST systems for which no date of installation is known, shall immediately comply with all release detection requirements for tanks and suction piping in accordance with the requirements of §§6003, 6004.4 and 6004.5; and

(b) UST systems installed on or after January 1, 1980, shall comply with the release detection requirements for tanks and suction piping, in accordance with the applicable requirements of §§6003, 6004.4 and 6004.5, not later than December 22, 1993.

6000.4 If the owner or operator of any existing UST system cannot apply a method of release detection that complies with the requirements of this chapter, the owner or operator shall be required to complete the closure requirements of Chapter 61 by the dates upon which release detection is required pursuant to §§6000.2 and 6000.3.

6000.5 In complying with the requirements of this chapter, owners and operators may use a code of practice developed by a nationally recognized association or independent testing laboratory, as specified by the Director.

6000.6 Each release detection system shall be capable of detecting a release from any portion of the tank and the connected underground piping that contains or conveys a regulated substance.

6000.7 Each release detection system shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance and service checks for operability or running condition.

6000.8 Each release detection system shall meet the applicable performance requirements for the particular system set forth in §§6005 through 6013.

6000.9 Any performance claims made for a release detection system shall be stated in writing by the equipment manufacturer or installer. Each claim shall include a description of the manner in which the claim was derived or tested.

6000.10 Each release detection method or system, except for systems permanently installed on or before December 22, 1990, shall be capable of detecting the leak rate or quantity specified for the applicable method in §6006, 6007, 6008, or 6013, with a probability of detection of ninety-five one-hundredths (0.95) and a probability of false alarm of five one-hundredths (0.05).

6000.11 The Director may disapprove a leak detection method that does not meet the requirements of this section, that presents a safety hazard, or for which there has been no performance data submitted proving the reliability of the testing method under normal installation and operating conditions.

6000.12 When a release detection method operated in accordance with the performance standards of §§6005 through 6013 indicates that a release may have occurred, the owner and operator shall notify the Director, in accordance with the provisions of Chapter 62.

6000.13 Owners and operators of heating oil tanks having a capacity of one thousand one hundred (1,100) gallons or more shall only be required to provide release detection for USTs which are fifteen (15) years old or greater as set forth in §5503.

AUTHORITY: Unless otherwise noted, the authority for this chapter is §13 of the District of Columbia Underground Storage Tank Management Act of 1990, as amended, D.C. Law 8-242, D.C. Code §6-995.1 *et seq.* (1995 Repl. Vol.), Mayor's Order 91-160 dated October 9, 1991; and the District of Columbia Water Pollution Control Act of 1984, D.C. Law 5-188, D.C. Code §6-921 (1995 Repl. Vol.), Mayor's Order 85-152 dated September 12, 1985.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7866 (November 12, 1993).

6001 RECORDKEEPING

6001.1 The owner and operator of each UST system shall maintain records, in accordance with this section and §5602 of this subtitle, demonstrating compliance with all applicable requirements of this chapter.

6001.2 All written performance claims pertaining to any release detection system used, including the manner in which those claims have been justified or tested by the equipment manufacturer or installer, shall be maintained for five (5) years from the date of installation.

6001.3 The results of any sampling, testing, or monitoring of an UST system shall be maintained for at least three (3) years, except as provided in §6001.4 of this section.

6001.4 The results of tank tightness testing conducted in accordance with §6007 of this chapter shall be retained until the next test of the UST system is conducted.

6001.5 Written documentation of all calibration, maintenance, and repair of release detection equipment permanently located on the UST system site shall be maintained for at least three (3) years after the servicing work is completed.

6001.6 All schedules of required calibration and maintenance provided by the release detection equipment manufacturer shall be retained for five (5) years from the date of installation of the UST system.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7867 (November 12, 1993).

6002 HAZARDOUS SUBSTANCES

6002.1 Each owner and operator of a hazardous substance UST system shall provide release detection that meets the requirements of this section.

6002.2 Release detection for new hazardous substance UST systems shall meet the requirements set forth in §5702 of this subtitle.

6002.3 Secondary containment systems shall be checked for evidence of a release at least every thirty (30) days.

6002.4 An alternative method of release detection for a hazardous substance system may be approved if the owner and operator do the following:

(a) Demonstrate to the satisfaction of the Director that the proposed alternative method can detect a release of the stored substance as effectively as any of the methods allowed in §§6006 through 6012 can detect a release of petroleum; and

(b) Provide information satisfactory to the Director on effective corrective action technologies, known and potential health risks, the chemical and physical properties of the stored substance, and the characteristics of the UST site.

6002.5 The owner and operator shall obtain approval of the Director to use an alternate release detection method prior to the installation and operation of the new UST system.

6002.6 Release detection for existing hazardous substance UST systems shall meet the requirements for petroleum UST systems set forth in §6003; Provided, that all

existing hazardous substance UST systems shall meet the release detection requirements for new systems set forth in this section on or before December 22, 1994.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7868 (November 12, 1993).

6003 PETROLEUM UST SYSTEM TANKS

6003.1 Each owner and operator of a petroleum UST system shall provide release detection for tanks in accordance with the provisions of this section.

6003.2 Tanks shall be monitored at least every thirty (30) days for releases using one of the methods listed in §§6008 through 6012, except as provided otherwise in this section.

6003.3 A UST system which meets the monthly inventory control requirements set forth in §6005 or 6006, may use tank tightness testing, conducted in accordance with §6007 at least every five (5) years until December 22, 1995, if the UST system:

(a) Meets the new UST system performance standards set forth in Chapter 57;

(b) Has been upgraded in accordance with the provisions of Chapter 58; or

(c) Was installed prior to November 12, 1993, and meets the new tank performance standards set forth in 40 CFR §280.20.

6003.4 An UST system that does not meet the performance standards for new UST systems under Chapter 57 or the performance standards for upgraded UST systems under Chapter 58 may use monthly inventory controls, conducted in accordance with §6005 or 6006, and annual tank tightness testing, conducted in accordance with §6007, until December 22, 1995.

6003.5 An UST tank with a capacity of five hundred fifty (550) gallons or less may use weekly tank gauging, in accordance with §6006.

6003.6 Each release detection method used to meet the requirements of this section shall be conducted in accordance with the applicable requirements for that method set forth in §§6005 through 6012 of this chapter.

6003.7 Secondary containment systems shall be checked for evidence of a release at least every thirty (30) days.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7869 (November 12, 1993).

6004 PETROLEUM UST SYSTEM PIPING

6004.1 The owner or operator of a petroleum UST system shall regularly monitor all underground piping that contains or conveys regulated substances for releases, in accordance with the provisions of this section.

6004.2 Underground piping that conveys regulated substances under pressure shall be equipped with an automatic line leak detector, in accordance with §6013.2 of this chapter.

6004.3 Underground piping that conveys regulated substances under pressure shall have an annual line tightness test conducted in accordance with §6013.3 or have monthly monitoring conducted in accordance with §6013.4.

6004.4 Underground piping that conveys regulated substances under suction shall either have a line tightness test conducted at least every three (3) years, in accordance with §6013.3, or use a monthly monitoring method conducted in accordance with §6013.4.

6004.5 No release detection shall be required for suction piping that is designed and constructed to meet the following standards:

(a) The below-grade piping operates at less than atmospheric pressure;

(b) The below-grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;

(c) Only one (1) check valve is included in each suction line;

(d) The check valve is located directly below and as close as practical to the suction pump; and

(e) A method, satisfactory to the Director, is provided that allows compliance with the provisions of subparagraphs (b) through (d) of this subsection to be readily determined.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7870 (November 12, 1993).

6005 INVENTORY CONTROL

6005.1 Product inventory control (or another test of equivalent performance that is satisfactory to the Director) shall be conducted monthly to detect a release of at least one percent (1.0 %) of flow-through plus one hundred thirty (130) gallons on a monthly basis, in accordance with the provisions of this section.

6005.2 Inventory volume measurements for inputs and withdrawals of a regulated substance, and the amount of regulated substance in the tank after inputs or withdrawals, shall be recorded each operating day on a form satisfactory to the Director.

6005.3 The equipment used shall be capable of measuring the level of product over the full range of the tank's height to the nearest one-eighth inch (1/8 in.).

6005.4 Each input of a regulated substance shall be reconciled with the appropriate delivery receipt by measurement of the tank inventory volume before and after each delivery.

6005.5 Each delivery shall be made through a drop tube that extends to within one foot (1 ft.) of the tank bottom.

6005.6 The dispensing of regulated substances shall be metered and recorded within District of Columbia standards for meter calibration or an accuracy of six cubic inches (6 $in.^3$) for every five (5) gallons of regulated substance withdrawn.

6005.7 The water level at the bottom of the tank shall be measured at least once each month. The measurement of any water level in the bottom of the tank shall be made to the nearest one-eighth inch (1/8 in.).

SOURCE: Final Rulemaking published at 40 DCR 7835, 7870 (November 12, 1993).

6006 MANUAL TANK GAUGING

6006.1 Tank gauging may be used as the sole method of release detection only for tanks with a nominal capacity of five hundred fifty (550) gallons or less. The owners and operators of tanks of five hundred fifty-one (551) to two thousand (2,000) gallons nominal capacity may use manual tank gauging in place of manual inventory control under §6005. The owners and operators of tanks with a nominal capacity of greater than two thousand (2,000) gallons shall not use this method to meet the requirements of this chapter.

6006.2 Manual tank gauging shall be conducted in accordance with the provisions of this section.

6006.3 Each tank liquid level measurement shall be taken at the beginning and end of a period of at least thirty-six (36) hours during which no liquid is added to or removed from the tank. The level measurements shall be based on an average of two (2) consecutive stick readings taken at both the beginning and end of the period.

6006.4 The equipment used for manual tank gauging shall be capable of measuring the level of product over the full range of the height of the tank to the nearest one-eighth inch (1/8 in.).

6006.5 The owner or operator shall suspect a leak and follow the applicable requirements of Chapter 62 if the variation between beginning and ending measurements taken in accordance with this section exceeds the following weekly or monthly standards:

(a) Nominal tank capacity of five hundred fifty (550) gallons or less: A variation of ten (10) gallons or more between weekly test measurements, or an average variation of five (5) gallons or more over four (4) consecutive weekly tests;

(b) Nominal tank capacity of five hundred fifty-one (551) gallons up to one thousand (1,000) gallons: A variation of thirteen (13) gallons or more between weekly test measurements, or an average variation of seven (7) gallons or more over four (4) consecutive weekly tests;

(c) Nominal tank capacity of one thousand one (1,001) gallons to two thousand (2,000) gallons: A variation of twenty-six (26) gallons or more between weekly

test measurements, or an average variation of thirteen (13) gallons or more over four (4) consecutive weekly tests.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7871 (November 12, 1993).

6007 TANK TIGHTNESS TESTING

6007.1 Tank tightness testing (or another test of equivalent performance satisfactory to the Director) shall be capable of detecting one-tenth of a gallon per hour (.1 gal/hr) leak rate from any portion of the tank that contains or conveys a regulated substance.

6007.2 The precision testing method used shall account for the effects of the following factors when detecting a leak rate:

(a) Thermal expansion or contraction of the regulated substance;

(b) Vapor pockets;

(c) Tank deformation;

(d) Evaporation or condensation; and

(e) The location of the water table.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7872 (November 12, 1993).

6008 AUTOMATIC TANK GAUGING

6008.1 Automatic tank gauging equipment that tests for the loss of product and conducts inventory control shall meet the requirements of this section.

6008.2 An automatic product level monitor test shall be capable of detecting a two-tenths gallon per hour (0.2 gal/hr) leak rate from any portion of the tank that routinely contains a regulated substance.

6008.3 Inventory control (or another test of equivalent performance that is satisfactory to the Director) shall be conducted in accordance with the requirements of §6005.

6008.4 For tanks installed after November 12, 1993, if automatic tank gauging is to be used as a method of release detection, the tank must be installed horizontally without tank tilt.

SOURCE: Final Rulemaking published at 40 DCR 7835, 78673 (November 12, 1993).

6009 VAPOR MONITORING

6009.1 A release detection method that monitors or tests for vapors within the soil gas of the excavation zone shall meet the requirements of this section.

6009.2 The owner and operator shall assess the excavation zone to ensure compliance with the requirements set forth in this section.

6009.3 The materials used as backfill (such as gravel, sand, crushed rock, or similar materials) shall be sufficiently porous to readily allow diffusion of vapors from releases into the excavation zone.

6009.4 The stored regulated substance, or a tracer compound placed in the tank system, shall have a volatility that is sufficient to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank.

6009.5 The measurement of vapors by the monitoring device shall not be reduced in effectiveness or rendered inoperative by ground water, rainfall, soil moisture, or any other known interference to the point that a release could go undetected for more than fifteen (15) days.

6009.6 The level of background contamination in the excavation zone shall not interfere with the vapor monitoring method used to detect releases from the tank.

6009.7 The vapor monitor used shall be designed and operated to detect any significant increase in concentration above the background concentrations in the excavation zone of any one (1) of the following:

(a) The regulated substance stored in the tank system;

(b) A component or components of the regulated substance; or

(c) A tracer compound placed in the tank system.

6009.8 Before using vapor monitoring, the owner or operator shall assess the excavation zone to ensure compliance with §§6009.3 through 6009.6 of this section, and to establish the number and positioning of monitoring wells that will detect releases within the excavation zone from any portion of the tank that routinely contains product.

6009.9 Monitoring wells shall be clearly marked and secured to avoid unauthorized access and tampering.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7873 (November 12, 1993).

6010 LIQUID LEVEL MONITORING OF GROUND-WATER

6010.1 Testing or monitoring for liquids on the ground-water or in the tank excavation zone shall meet the requirements of this section.

6010.2 The regulated substance stored shall be immiscible in water and have a specific gravity of less than one (1).

6010.3 If testing or monitoring for liquids on ground-water, the ground-water shall never be more than twenty feet (20 ft.) from the ground surface and the hydraulic

conductivity of the soil(s) between the UST system and the monitoring wells or devices shall not be less than one one-hundredth of a centimeter per second (0.01 cm/sec). The soil should consist of gravels, coarse to medium sands, coarse silts, or other permeable materials.

6010.4 The slotted portion of the monitoring well casing shall be designed to prevent migration of natural soils or filter pack into the well and to allow entry of regulated substance on the water table into the well under both high and low ground water conditions.

6010.5 Monitoring wells shall be sealed from the ground surface to the top of the filter pack.

6010.6 Monitoring wells or devices shall intercept the excavation zone or shall be as close to the excavation zone as is technically feasible.

6010.7 Before using liquid level monitoring, the owner or operator shall assess the excavation zone to ensure compliance with §§6010.2 through 6010.6, and to establish the number and positioning of monitoring wells or devices that will detect releases within the excavation zone from any portion of the tank that routinely contains product. A minimum of two (2) wells shall be required in each excavation zone.

6010.8 The continuous monitoring devices or manual methods used shall be capable of detecting the presence of at least one-eighth inch (1/8 in.) of free regulated substance on top of the ground water in a monitoring well.

6010.9 Each monitoring well shall be clearly marked and secured to avoid unauthorized access and tampering.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7874 (November 12, 1993).

6011 INTERSTITIAL MONITORING

6011.1 Interstitial monitoring between an UST system and a secondary barrier immediately around or beneath the UST system may be used, but only if the system is designed, constructed, and installed to detect a leak from any portion of the tank that routinely contains product and also meets the requirements of this section which are applicable to the particular UST system.

6011.2 For double-walled UST systems, the sampling or testing method shall be capable of detecting a release through the inner wall in any portion of the tank that routinely contains a regulated substance.

6011.3 Where vacuum monitoring is utilized, the vacuum must be maintained at not less than five inches (5 in.) of mercury and shall not exceed manufacturer's instructions. If the vacuum falls below five inches (5 in.) of mercury, the responsible party shall report a suspected release to the Director. A vacuum shall

not be reinstituted more frequently than once every three (3) months without prior approval of the Director.

6011.4 For tanks with an internally fitted liner, an automated device shall be used that is capable of detecting a release between the inner wall of the tank and the liner. The liner shall be compatible with the substance stored.

6011.5 For UST systems with a secondary barrier within the excavation zone, the secondary barrier shall meet the following requirements:

(a) The barrier, around or beneath the UST system, shall consist of synthetic constructed material that is sufficiently thick and impermeable to direct a release to the monitoring point and permit its detection. The permeability shall be not greater than one millionth of a centimeter per second (10^{-6} cm/sec) for the regulated substance stored;

(b) The barrier shall be compatible with the regulated substance stored so that a release from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected; and

(c) If the tank is cathodically protected, the barrier shall be installed so that it does not interfere with the proper operation of the cathodic protection system.

6011.6 An UST system with a secondary barrier within the excavation zone shall use a sampling or testing method that is capable of detecting a release between the UST system and the secondary barrier. The testing or sampling method used shall not be reduced in effectiveness or rendered inoperative by ground-water, rainfall, soil moisture, or any other known interference to the point that a release could go undetected for more than fifteen (15) days.

6011.7 The owner and operator of an UST system with a secondary barrier within the excavation zone shall assess the site to ensure that the secondary barrier is always above the ground water and not in a twenty-five (25) year flood plain, unless the barrier and monitoring designs are designed for use under those conditions.

6011.8 The monitoring wells for each UST system with a secondary barrier within the excavation zone shall be clearly marked and secured to avoid unauthorized access and tampering.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7875 (November 12, 1993).

6012 OTHER METHODS OF RELEASE DETECTION

6012.1 The Director may approve an application for the use of another method of release detection if the owner and operator can demonstrate that the method is capable of detecting a release as effectively as any of the methods allowed in §§6007 through 6011 of this chapter, and meets the requirements of this section.

6012.2 The alternative release detection method, or combination of methods, shall be capable of detecting either of the following:

(a) A leak rate of two-tenths gallon per hour (0.2 gal/hour); or

(b) A release of one hundred fifty (150) gallons within a month with a probability of detection of not less than ninety-five percent (95%) and a probability of false alarm not greater than five percent (5%).

6012.3 In comparing methods, the Director shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected.

6012.4 If an alternative method is approved, the owner and operator shall comply with any conditions imposed by the Director on its use to ensure the protection of human health and the environment.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7876 (November 12, 1993).

6013 PETROLEUM UST SYSTEM PIPING

6013.1 Each method of release detection for petroleum UST system piping, excluding heating oil tanks, shall meet the requirements of this section.

6013.2 Automatic line leak detectors which alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping or triggering an audible or visual alarm may be used only if they detect leaks of three gallons per hour (3 gal/hr) at ten pounds per square inch (10 lbs/in^2) line pressure within one (1) hour. The owner or operator shall conduct an annual test of the operation of the leak detector, in accordance with the manufacturer's requirements.

6013.3 Periodic line tightness testing of piping may be conducted only if it can detect a one-tenth gallon per hour (0.1 gal/hr) leak rate at one and one-half (1.5) times the operating pressure and includes testing of return lines as applicable.

6013.4 Any of the methods for release detection for tanks set forth in §§6009 through 6012 of this chapter may be used for piping, in accordance with the provisions of

the applicable section, if the method used is designed to detect a release from any portion of the underground piping that contains or conveys regulated substances.

SOURCE: Final Rulemaking published at 40 DCR 7835, 7877 (November 12, 1993).